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BOYS' AND GIRLS' CLUB WORK

Directions for Home Canning in Tin and Mechanical Sealing

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DIRECTIONS FOR HOME CANNING IN TIN AND MECHANICAL SEALING.

THE use of tin cans simplifies the operation of home canning and makes it possible to do more work in a given time. There is the further advantage that products packed in tin cans are easily handled in transportation and storage.

Plain tin cans can be used in packing most products. Enameled cans, however, should be used for berries, cherries, rhubarb, greens, beets, pumpkin, and squash. Enameled cans may be had in all types and sizes.

There are two main types of tin cans on the market: (1) Sanitary or rim-seal cans, and (2) cap-and-hole cans.

SANITARY OR RIM-SEAL CANS.

The sanitary, or rim-seal, can consists of can and cover pressed into a particular shape. That part of the cover that comes in contact with the can is coated with a compound or fitted with a paper gasket or ring that makes a perfect seal when the cover is crimped on the can. The seal can be made only with a machine constructed for the purpose. (Fig. 1.) No heat or solder is required to make the seal. There are several other types of rim-seal cans that differ from the ordinary sanitary can in construction. They are made for use in special machines.

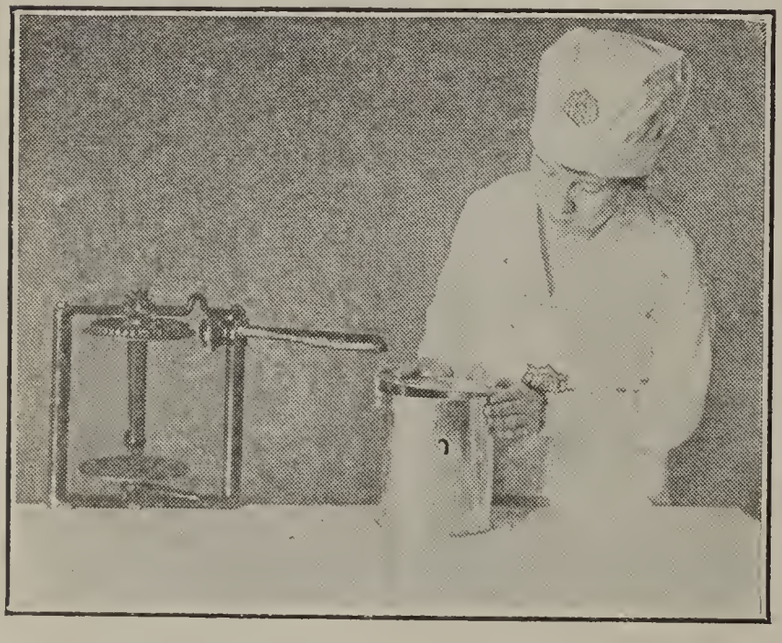

FIG. 1.—Sanitary rim-seal can, and machine for crimping and sealing.

SEALING RIM-SEAL CANS.

The can should be sealed immediately after the boiling water, sirup, or gravy is added. Two distinct operations are required. When the can is placed in the machine and clamped in position, the first roll is applied while the can is being revolved. This operation

FIG. 2.—Placing the cap in position for sealing, and adjusting with base lever.

should be continued until the cover is locked in position on the can and the lap joint is made. The second roll is then applied and the can revolved to close the joint and hermetically seal the can. These mechanical sealers are adjustable to seal No. 2, No. 2½, No. 3, and No. 10 sanitary cans. Figures 2, 3, and 4 show steps in the method of sealing rim-seal cans.

TESTING THE JOINT OR SEAL.

To determine if the machine is properly adjusted, place three or four tablespoons of water in a can and seal. Hold the sealed can under the surface of hot water for three minutes. If air bubbles rise from the can, it indicates that the seal has not been properly made. After the machine is properly adjusted, it is a worth-while practice to run the thumb nail around the joint of each can after the first operation to determine whether the joint has been properly made. (See fig. 5.)

Special rim-seal cans should be handled according to instructions by the manufacturer.

CAP-AND-HOLE CANS.

The cap-and-hole can consists of a can and a cover, carrying a rim of solder. (See fig. 6, *b*.) The cap is fastened on the can by the application of heat as described later.

SEALING CAP-AND-HOLE CANS.

Soldering equipment.—The soldering equipment required includes a capping iron, a tipping copper, soldering flux, a small brush, a porce-

FIG. 3.—Applying the first roll, making the lap joint.

FIG. 4.—Applying the second roll, to close joint and hermetically seal the can.

lain, glass, or stoneware cup in which to keep the soldering flux, sal ammoniac, a few scraps of zinc, solder, a soft brick, and a file. If a hand-sealing machine and solderless cans are used, all other equipment and material are unnecessary.

Soldering flux is a solution of zinc in muriatic acid. It is used for cleaning the irons and for brushing the tin and solder surfaces so that the solder will adhere to the tin. It may be made as follows: Place 10 cents' worth of crude muriatic acid (which may be purchased at the drug store) in a porcelain, stoneware, or glass jar and add as much sheet zinc in small pieces as the acid will dissolve; when the zinc has dissolved dilute the solution with a little water (about half-and-half) and strain through a piece of cloth or muslin. Flux is always best when it has stood at least 12 to 16 hours before being used. Keep the flux well mixed and free from dust and dirt. Care should be taken not to get the flux on clothing.

Soldering flux ready for use may be purchased at drug stores and hardware stores. Sometimes a powdered rosin is used as a substitute for the flux. Recently a soldering paste has been manufactured which is very desirable for use in canning work because it is convenient and clean to handle. It is sometimes called electricians' nonacid flux.

Tinning the capping iron.—Clean the iron with a file or knife; heat it sufficiently

FIG. 5.—Testing the seal.

FIG. 6.—Tinning the tipping copper (or soldering iron) : *a*, Flux jar and brush ; *b*, solder-hemmed cap ; *c*, bar sal ammoniac ; *d*, tipping copper or soldering iron ; *e*, wire solder.

to melt a little solder in the sal ammoniac (5 or 10 cents' worth purchased at the drug store) ; then place the iron in the mixture of sal ammoniac and solder and rotate it until the soldering edge of the iron is thoroughly covered with the solder.

Tinning the tipping copper.—The tipping copper is tinned in very much the same way as the capping iron. Sometimes it is desirable, however, to file the tipping copper sufficiently to make it smooth and to correct the point. The copper should be filed to nearly a sharp point. All particles of smudge, burned materials, etc., should be removed from the iron before tinning. Heat the copper and rotate the tip of it in the mixture of sal ammoniac and solder until it has been covered with the melted solder and is as bright as silver. (See fig. 6.)

CAPPING THE CAN.

Learn to use one tin can for the training of all members of a canning club. By capping and tipping, heating the cap and throwing it off, and simply adding another cap to the same can, you can use this one until you have trained all members of the class.

When capping

FIG. 7.—Applying the flux, the first step in soldering tin cans: *a*, Capping iron ; *b*, head of inner upright steel ; *c*, proper position of brush while stroking rim of cap with flux ; *d*, tipping copper or soldering iron.

FIG. 8.—Position of capping iron and upright steel before lowering and sealing the rim.

the full packs, arrange the cans in rows upon the table while the capping and tipping irons are in the fire heating. Take a handful of solder-hemmed caps and place the caps on all cans ready to be capped. Place your finger on the venthole, hold the cap in place, and run the brush containing a small amount of flux around the solder-hemmed cap, evenly, with one stroke of the hand. Be careful not to get the flux inside of the can. Do this with all cans ready to be capped. (See fig. 7.) Then take the capping iron from the fire and insert the upright steel in the center. Hold the capping iron above the cap until the center rod touches the cap and holds it in place. (See fig. 8.) Then bring the cap down in contact with all four points of the solder-hemmed cap and rotate back and forth about three strokes. Do not bear down on the capping iron. A forward and backward rotation, if properly applied, will perfectly solder the cap in place. (See fig. 9.) Remove the capping iron and inspect the joint. If any pinholes are found, recap or repair with the tipping copper. It may be necessary to use a piece of wire solder or a waste solder rim from a cap to add more solder to the broken places or pinholes of a cap.

FIG. 9.—Method of holding iron and position of hands for rotating the capping iron to strike all points of cap at same time.

TIPPING THE CAN.

With the flux jar and brush conveniently at hand, dip the brush in the flux and strike the venthole a side stroke lightly with

the brush saturated with flux. Place the point of the wire solder over the venthole. Place upon this the point of the hot, bright, tipping copper. Press down with a rotary motion and remove quickly. (If a waste solder-hemmed cap rim is available, this may be used instead of the wire solder.)

With a little practice a smooth, perfect joint is easily made.

SUGGESTIONS ON ORDERING CAP-AND-HOLE CANS.

Solder-hemmed caps are considered handier than plain caps. For whole fruits and vegetables, cans with $2\frac{7}{16}$-inch openings are preferable. Since it will not ordinarily be advisable to have more than one capping iron, it is recommended that cans with a $2\frac{7}{16}$-inch opening be selected.

SIZE OF TIN CANS.

Several standard sizes of tin cans are in common use and may be had in either sanitary or cap-and-hole type:

Number, size, and approximate capacity of tin cans.

Number	Size.	Approximate capacity.
1	$2\frac{5}{8}$ by 4 inches	$\frac{3}{4}$ pint
2	$2\frac{5}{16}$ by $4\frac{9}{16}$ inches	1 pint
3	$4\frac{1}{8}$ by $4\frac{7}{8}$ inches	1 quart
10	$6\frac{3}{16}$ by $6\frac{7}{8}$ inches	1 gallon

WEIGHTS OF CANS AND CASES.

1,000 No. 2 empty tin cans will weigh 212 pounds.
1,000 No. 3 empty tin cans will weigh 310 pounds.
1 case (wood) for 24 empty No. 2 tin cans will weigh 13 pounds.
1 case (wood) for 24 empty No. 3 tin cans will weigh 17 pounds.

NUMBER OF CANS THAT CAN BE FILLED PER BUSHEL OF VARIOUS FRUITS AND VEGETABLES.

The following table shows the number of cans that can be filled per bushel of various fruits and vegetables:

Cans per bushel of various fruits and vegetables.

Product (1 bushel).	No. 2 cans (pints).	No. 3 cans (quarts).	Product (1 bushel).	No. 2 cans (pints).	No. 3 cans (quarts).
Windfall apples	30	20	Tomatoes	22	15
Standard peaches	25	18	Shelled lima beans	50	30
Pears	45	30	String beans	30	20
Plums	45	30	Sweet corn	45	25
Blackberries	50	30	Shelled peas	16	10
Windfall oranges (sliced)	22	15	Sweet potatoes	30	20
Windfall oranges (whole)	35	22			

MECHANICAL SEALER.

The container used with the mechanical sealer is a special glass jar with a specially constructed metal cap that is sealed on to the jar just before processing. It is necessary to have the sealing machine to do this work. This machine will not operate on the ordinary glass jars used in home canning. The jar is hermetically sealed before sterilizing. It should not be filled above the point where the neck connects with the body of the jar. (See fig. 10.) The cap is provided with a specially constructed lip which makes it easy to remove the cover. A piece of parchment protects the product from the tin top.

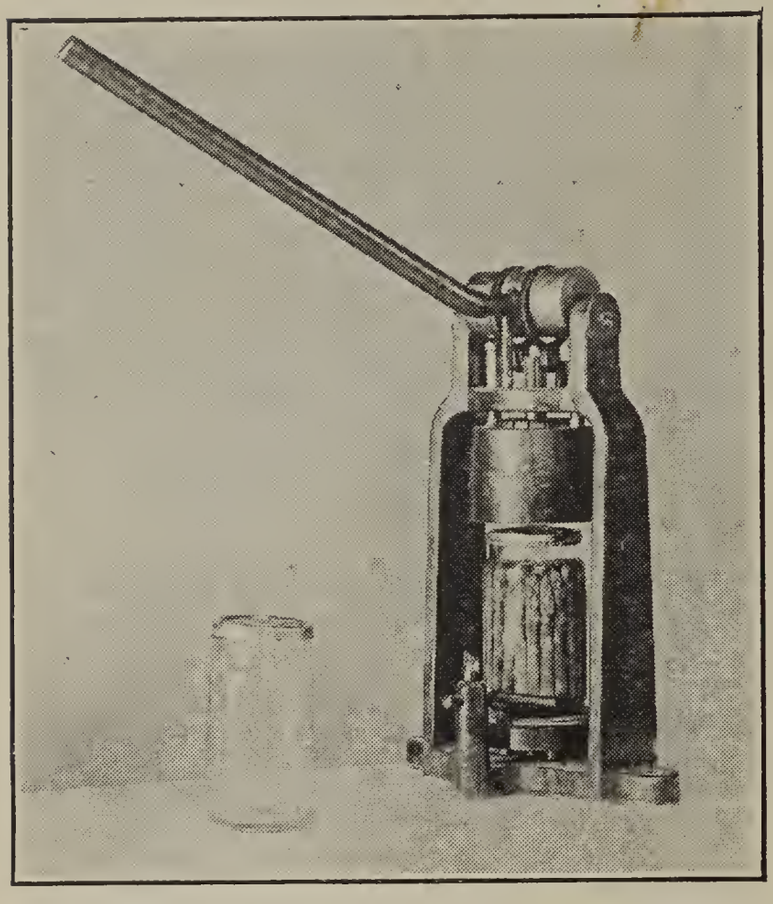

FIG. 10.—The mechanical sealer of glass jars, with lever in first position. The jar, which has been sealed, shows water just above point between body and neck of jar.

NOTE.—This is one of a series of follow-up circulars (the NR series) printed for the exclusive use of club members and club leaders. Other publications on canning may be had by writing to the State agricultural college or to the United States Department of Agriculture.

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